

Your Name

Mrs. T

127

Notes

Lesson 11-7 and 10-8

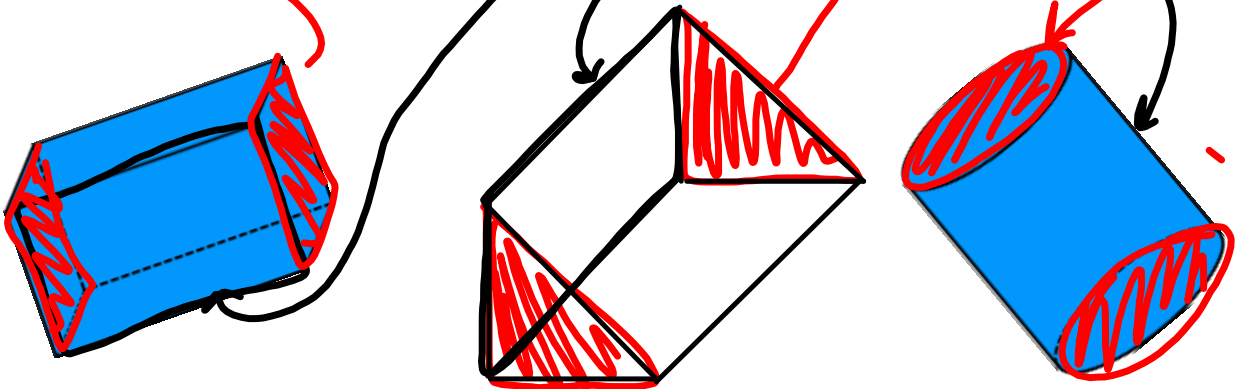
Surface Area of Prisms and Cylinders

Surface Area

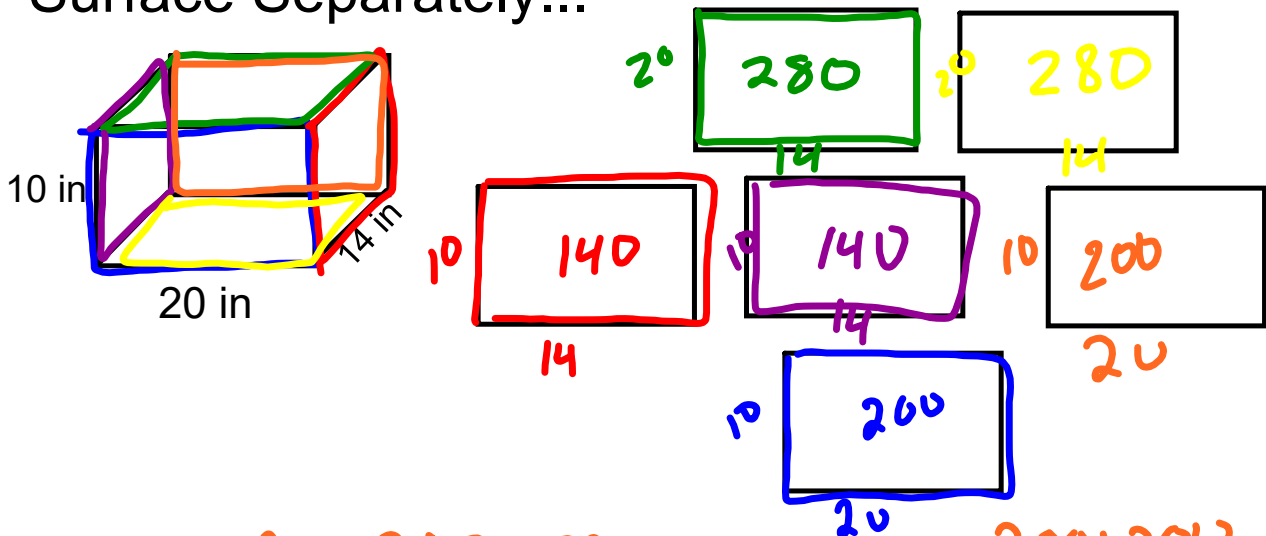
the 2D space/area that covers the object
addition (sum) of outer area of all faces

--> the prism has two bases which are parallel

--> faces that are NOT the bases are called the lateral faces



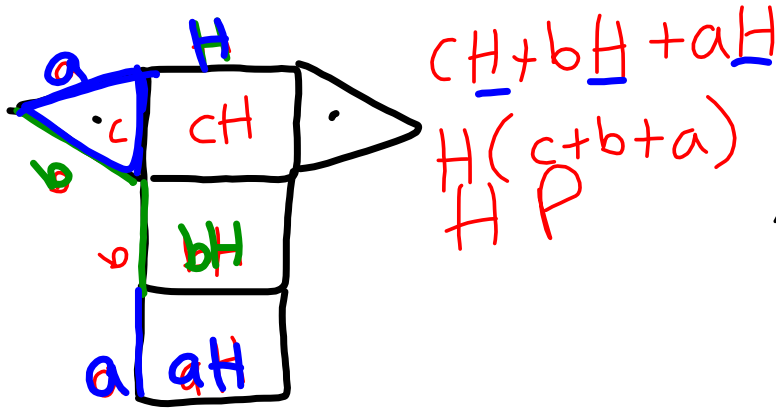
You can always find the Area of Each Surface Separately...



$$A = 280 + 280 + 140 + 140 + 200 + 200$$

$$A = 1,240 \text{ in}^2$$

BUUUT...let's look at the nets! Is there a faster way using perimeter?



*when the lateral faces are flattened out they make one LARGE rectangle.

Finding the area of the lateral faces leads us to finding the surface area :)

← "lateral area"

Surface Area

Prisms 2 Base areas Lateral Area

$$SA = L + 2B$$

$$SA = PH + 2B$$

Pyramids B any base slant height

$$SA = L + B$$

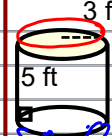
$$SA = \frac{1}{2}Pl + B$$

because Sides are triangles!

Circle Cylinder 3D Height area of Base shape

$$SA = (2\pi r)H + 2(\pi r^2)$$

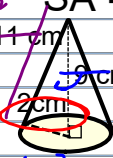
3 ft Perimeter is circumference 5 ft



Cone

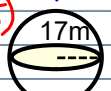
$$SA = \frac{1}{2}(2\pi r)l + (\pi r^2)$$

11 cm SA = 1/2(2π(2)·11 + π(2)²)



Sphere SA = 4πr²

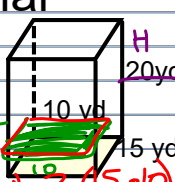
17 m SA = 4π(7)² SA = 615.75 m²



Rectangle Prism

$$SA = P \cdot H + 2(b \cdot h)$$

10 yd 15 yd 20 yd

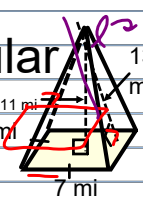


$$SA = (15+10+15+10) \cdot 20 + 2(15 \cdot 10)$$

$$SA = (1000) + 300$$

$$SA = 1300 \text{ yd}^2$$

Rectangular Pyramid 13 mi



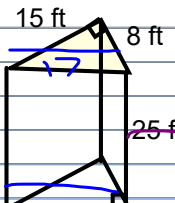
$$SA = \frac{1}{2}P \cdot l + (b \cdot h)$$

$$SA = \frac{1}{2}(7+7+7+7) \cdot 13 + (7 \cdot 7)$$

$$SA = 182 + 49$$

$$SA = 231 \text{ mi}^2$$

Triangle Prism



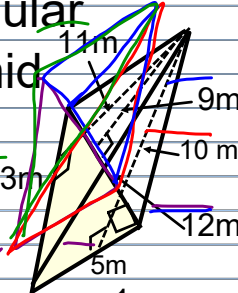
$$SA = P \cdot H + 2(\frac{1}{2}b \cdot h)$$

$$SA = (15+8+17) \cdot 25 + 2(\frac{1}{2}(8 \cdot 15))$$

$$SA = 1000 + 120$$

$$SA = 1120 \text{ ft}^2$$

Triangular Pyramid

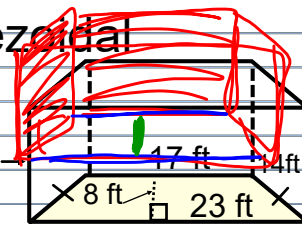


use if regular Δ

$$SA = \frac{1}{2}P \cdot l + (\frac{1}{2}b \cdot h)$$

If base is not regular redraw each face each slant height is different

Trapezoidal Prism



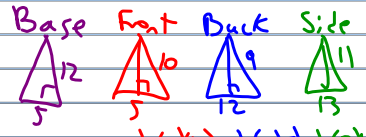
$$SA = PH + 2(\frac{1}{2}(b_1 + b_2)h)$$

$$SA = (14+14+23+14)20 + 2(\frac{1}{2}(17+23)8)$$

$$1680 \text{ ft}^2$$

Trapezoidal Pyramid

Base Front Back Side



$$SA = 30 + 25 + 54 + 71.5$$

$$SA = 180.5 \text{ m}^2$$

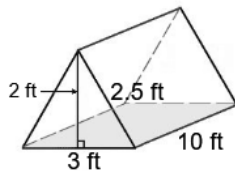
Name : _____ Score : _____

Teacher : _____ Date : _____

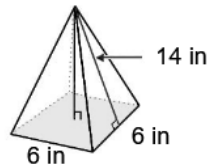
Surface Area of Prisms, Pyramids, Cylinders, and Cones

Find the surface area of each figure. Round answers to the nearest hundredth, if necessary.

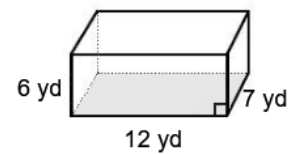
1)

Surface Area: 86.00 ft²

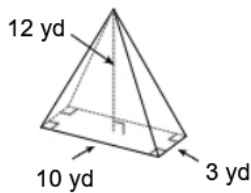
2)

Surface Area: 204.00 in²

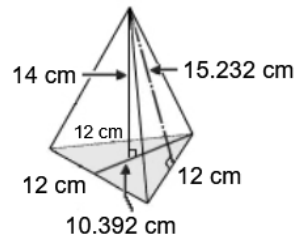
3)

Surface Area: 396.00 yd²

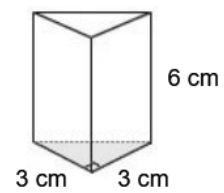
4)

Surface Area: 189.93 yd²

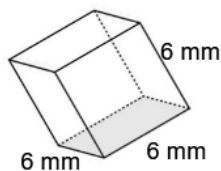
5)

Surface Area: 336.53 cm²

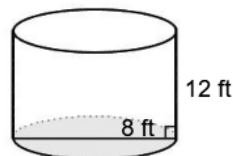
6)

Surface Area: 70.46 cm²

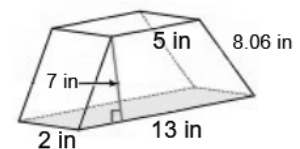
7)

Surface Area: 216.00 mm²

8)

Surface Area: 402.12 ft²

9)

Surface Area: 194.24 in²